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6,612,705	B1	9/2003	Davidson et al.
6,624,548	B1	9/2003	Miller et al.
6,957,894	B2	10/2005	Rabinowitz et al.
6,964,486	B2	11/2005	Rabinowitz
6,987,604	B2	1/2006	Rabinowitz et al.
6,988,809	B2	1/2006	Rabinowitz
7,077,361	B1	7/2006	Rabinowitz
7,172,789	B2	2/2007	Smith et al.
7,244,326	B2	7/2007	Craig et al.
7,251,882	B2	8/2007	Ricks et al.

OTHER PUBLICATIONS

R. A. Sinton et al, "Silicon Point Contact Concentrator Solar Cells", IEEE Electron Device Letters, vol. EDL-6, No. 8, Aug. 1985, pp. 405-407.

R. A. Sinton et al, "Design Criteria for Si Point-Contact Concentrator Solar Cells", IEEE Transactions on Electron Devices, vol. ED-34, No. 10, Oct. 19887, pp. 2116-2123.

Uthara Srinivasan et al., "Microstructure to Substrate Self-Assembly Using Capillary Forces," *Journal of Microelectromechanical Systems*, vol. 10, No. 1, Mar. 2001, pp. 17-24.

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(57) **ABSTRACT**

A photovoltaic solar cell for generating electricity from sunlight is disclosed. The photovoltaic solar cell comprises a plurality of spaced-apart point contact junctions formed in a semiconductor body to receive the sunlight and generate the electricity therefrom, the plurality of spaced-apart point contact junctions having a first plurality of regions having a first doping type and a second plurality of regions having a second doping type. In addition, the photovoltaic solar cell comprises a first electrical contact electrically connected to each of the first plurality of regions and a second electrical contact electrically connected to each of the second plurality of regions, as well as a passivation layer covering major surfaces and sidewalls of the photovoltaic solar cell.

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Related U.S. Application Data

(60) Division of application No. 12/957,082, filed on Nov. 30, 2010, now Pat. No. 8,329,503, which is a continuation-in-part of application No. 11/933,458, filed on Nov. 1, 2007.

(51) **Int. Cl.**
H01L 21/00 (2006.01)

(52) **U.S. Cl.**
USPC 438/98; 257/E27.125

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,482,568	A	1/1996	Hockaday
5,501,893	A	3/1996	Laermer et al.

5 Claims, 12 Drawing Sheets

